UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/756,617	01/08/2001	Louis B. Rosenberg	IMM1P015A	7226

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EXAMINER
BELL, PAUL A

ART UNIT	PAPER NUMBER
2675	

DATE MAILED: 09/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 January 2001* .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *88-133* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *103-112 and 131-133* is/are allowed.

6)☒ Claim(s) *88,99,113 and 122* is/are rejected.

7)☒ Claim(s) *89-98, 100-102, 114-121, and 123-130* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .	
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application (PTO-152)	
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) ☐ Other: .	

DETAILED ACTION

Double Patenting

1.   .The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321© may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2.   Claims 88, 99, 113 and 122 are rejected under the judicially created doctrine of

obviousness-type double patenting as being unpatentable over claims 1, 20, 35, and 44 of U.S.

Patent No. 6,219,032 because although the conflicting claims are not identical, they are not

patentably distinct from each other because the differences are an obvious variation of the actual

patent claim in view of the parts of the patent disclosure that support the claim language and give

the claim meaning in combination with an obvious form of analysis with regard to any non-

distinctive differences.

With regard to application claim 88;

A method for providing force feedback to the user of a graphical user interface displayed by a computer system and for aiding a user in manipulating a user-controlled cursor and in targeting graphical elements in said graphical user interface, said graphical elements interfacing said user to functions of said computer system, the method comprising: enabling a reception of data representing a displayed location of said user-controlled cursor within said graphical user interface displayed on a display screen of said computer system, a determination of said displayed location based upon signals received from a user interface device that represent the motion of a manipulatable physical object in at least one degree of freedom, said interface device coupled to said computer system and including an actuator for applying electronically modulated forces to be felt by said user, wherein said forces are modulated as a function of the location of said physical object in said at least one degree of freedom; enabling a selection of a force sensation to be output to said user based at least in part on said data representing said displayed location, wherein a plurality of targets displayed within said graphical user interface are associated with target force sensations that are output to said user, wherein said targets allow said user to interface with operating system functions implemented by said computer system, and wherein a particular target is associated with **at least two** different ones of said target force sensations, said force sensations being different such that said actuator changes its force output based on said force sensation to be output, a first one of said different force sensations selected to be output to said user when said cursor is moved from a position outside a boundary of said particular target to a position inside said boundary, a second one of said different force sensations selected to be output to said user when said cursor is moved from, a position inside said boundary to a position outside said boundary; and enabling a producing of a signal to cause said selected force sensation to be output as
forces to said user by said actuator.

With regard to patent claim 1;

A method for providing force feedback to the user of a graphical user interface displayed by a computer system and for aiding a user in manipulating a user-controlled cursor and in targeting graphical elements in said graphical user interface, said graphical elements interfacing said user to functions of said computer system, the method comprising: receiving data representing a displayed location of said user-controlled cursor within said graphical user interface displayed on a display screen of said computer system, a determination of said displayed location based upon signals received from a user interface device that represent the motion of a manipulatable physical object in at least one degree of freedom, said interface

device coupled to said computer system and including an actuator for applying electronically modulated forces to be felt by said user, wherein said forces are modulated as a function of the location of said physical object in said at least one degree of freedom; selecting a force sensation to be output to said user based at least in part on said data representing said displayed location, wherein a plurality of targets displayed within said graphical user interface are associated with target force sensations that are output to said user, wherein said targets allow said user to interface with operating system functions implemented by said computer system, and wherein a particular target is associated with **at least three** different ones of said target force sensations, said force sensations being different such that said actuator changes its force output based on said force sensation to be output, a first one of said different force sensations selected to be output to said user when said cursor is moved from a position outside a boundary of said particular target to a position inside said boundary, a second one of said different force sensations selected to be output to said user when said cursor is moved from a position inside said boundary to a position outside said boundary, and **a third one of said different force sensations selected to be output to said user when said cursor is moved within said particular target inside said boundary**; and providing a signal to cause said selected force sensation to be output as forces to said user by said actuator.

It is apparent that the above highlighted limitations of patent claim 1 and application

claim 88 are the only essential difference so therefore the patent claim has more limitations than

the application claim and it would be obvious to deleted limitations absent unexpected results,

application claim 88 is simply viewed as more narrow than patent claim 1.

With regard to application claim 99;

A method for providing force feedback to the user of a graphical user interface displayed by a computer system, said user using an interface device including a physical object contacted and moved by said user in a plurality of degrees of freedom, an actuator for imparting an electronically modulated force to said user, and a sensor apparatus for providing a locative signal responsive to and corresponding with manipulation of said object in said degrees of freedom, wherein a displayed cursor has a location correlated to said physical object as indicated by said locative signal, the method comprising: receiving an indication that said cursor is interacting with at least one graphical object displayed in said graphical user interface; determining **a collision force** to be output by said actuator of said interface device, said collision force based on a force

sensation associated with said cursor interacting with said at least one graphical object; scaling a magnitude of said collision force, wherein said scaling is based on a current velocity of said cursor in said graphical user interface, said scaling being performed after said collision force is determined; and outputting said scaled collision force to said physical object by said actuator of said interface device.

With regard to patent claim 20;

A method for providing force feedback to the user of a graphical user interface displayed by a computer system, said user using an interface device including a physical object contacted and moved by said user in a plurality of degrees of freedom, an actuator for imparting an electronically modulated force to said user, and a sensor apparatus for providing a locative signal responsive to and corresponding with manipulation of said object in said degrees of freedom, wherein a displayed cursor has a location correlated to said physical object as indicated by said locative signal, the method comprising: receiving an indication that said cursor is interacting with at least one graphical object displayed in said graphical user interface; determining **a total force** to be output by said actuator of said interface device, said total force based on a combination of a plurality of force sensations associated with said at least one graphical object; scaling a magnitude of said total force, wherein said scaling is based on a current velocity of said cursor in said graphical user interface, said scaling being performed after said total force is determined from said combination of associated force sensations; and outputting said scaled total force to said physical object by said actuator of said interface device.

It is apparent that the above highlighted limitations of patent claim 20 and application

claim 99 are obvious variations of each other in view of the specification that supports these

terms.

With regard to application claim 113;

A method of creating a tactile user interface on a computer system wherein a user feels force sensations when a graphically displayed cursor interacts with a particular graphical object displayed in a graphical user interface on a display device, and a location of said cursor on said display device is updated based on a received indication of movement of a physical object that is manipulated by said user, said physical object being included in a human interface device that

outputs said indication to said computer system, said method comprising: enabling the association on said computer system of a first type of graphical object with **a first force sensation**, said first type of graphical object associated with a first user interface function, said first force sensation represented by first sensation parameters; enabling the associating on said computer system of a second type of graphical object with **a second force sensation**, said second type of graphical object associated with a second user interface function, said second force sensation represented by second sensation parameters having different values from said first sensation parameters; determining on said computer system if said particular graphical object is of said first type or of said second type; if said cursor has entered a region associated with said particular graphical object based on movement of said physical object, and if said particular graphical object is of said first type, enabling a sending of a signal from said computer system to said human interface device, said signal representing said first force sensation, wherein said first force sensation is output to said user using an electronically-modulated actuator of said human interface device; and if said cursor has entered said region associated with said particular graphical object based on movement of said physical object, and if said particular graphical object is of said second type, enabling a sending of a signal from said computer system to said human interface device, said signal representing said second force sensation, wherein said second force sensation is output to said user using an electronically-modulated actuator of said human interface device.

With regard to patent claim 35;

A method of creating a tactile user interface on a computer system wherein a user feels force sensations when a graphically displayed cursor interacts with a particular graphical object displayed in a graphical user interface on a display device, and a location of said cursor on said display device is updated based on a received indication of movement of a physical object that is manipulated by said user, said physical object being included in a human interface device that outputs said indication to said computer system, said method comprising: associating on said computer system a first type of graphical object with **a first entry force sensation**, said first type of graphical object associated with a first user interface function, said first entry force sensation represented by first sensation parameters; associating on said computer system a second type of graphical object with **a second entry force sensation**, said second type of graphical object associated with a second user interface function, said second entry force sensation represented by second sensation parameters having different values from said first sensation parameters; determining on said computer system if said particular graphical object is of said first type or of said second type; if said cursor has entered a region associated with said particular graphical object based on movement of said physical object, and if said particular graphical object is of said first type, sending a signal from said computer system to said human interface device, said signal representing said first entry force sensation, wherein said first entry force sensation is

output to said user using an electronically-modulated actuator of said human interface device; and if said cursor has entered said region associated with said particular graphical object based on movement of said physical object, and if said particular graphical object is of said second type, sending a signal from said computer system to said human interface device, said signal representing said second entry force sensation, wherein said second entry force sensation is output to said user using an electronically-modulated actuator of said human interface device.

It is apparent that the above highlighted limitations of patent claim 35 and application

claim 113 are the only essential difference so therefore the patent claim has more limitations than

the application claim and it would be obvious to deleted limitations absent unexpected results,

application claim 113 is simply viewed as more narrow than patent claim 113.

With regard to application claim 122;

A method of creating a tactile user interface using a computer system wherein a user feels forces when a graphically displayed cursor interacts with a particular graphical object displayed in a graphical user interface on a display device, said graphical object associated with a function of said computer system, and a location of said cursor on said display device is updated based on an indication of movement, received over a communication bus, of a physical object that is manipulated by said user, said physical object being included in a human interface device that outputs said indication to said computer system over said communication bus, said method comprising: creating a mapping with said computer system that associates each of a plurality of types of ,graphical objects in said graphical user interface with at least one of a plurality of force sensations using said computer system, at least two of said assigned force sensations being different and represented by sensation parameters including a magnitude and a duration; if said cursor has entered a boundary of a region associated with said particular graphical object, selecting with said computer system an appropriate one of said force sensations based on said mapping, said type of said particular graphical object, and **a direction of motion of said cursor within said graphical user interface**; and enabling a sending of a signal from said computer system to said human interface device over said communication bus, said signal representing said selected force sensation, wherein said selected force sensation is output to said user using an electronically-modulated actuator of said human interface device.

With regard to patent claim 44;

A method of creating a tactile user interface using a computer system wherein a user feels forces when a graphically displayed cursor interacts with a particular graphical object displayed in a graphical user interface on a display device, said graphical object associated with a function of said computer system, and a location of said cursor on said display device is updated based on an indication of movement, received over a communication bus, of a physical object that is manipulated by said user, said physical object being included in a human interface device that outputs said indication to said computer system over said communication bus, said method comprising: creating a mapping with said computer system that associates each of a plurality of types of graphical objects in said graphical user interface with at least one of a plurality of force sensations using said computer system, at least two of said assigned force sensations being different and represented by sensation parameters including a magnitude and a duration; if said cursor has entered a boundary of a region associated with said particular graphical object, selecting with said computer system an appropriate one of said force sensations based on said mapping and said type of said particular graphical object; and sending a signal from said computer system to said human interface device over said communication bus, said signal representing said selected force sensation, wherein said selected force sensation is output to said user using an electronically-modulated actuator of said human interface device.

It is apparent that the above highlighted limitations of patent claim 44 and application claim 122 are the only essential difference. The added limitation "**a direction of motion of said cursor within said graphical user interface**" to application claim 122 would have been obvious in view of the specification that supports patent claim 44.

Allowable Subject Matter

3.   Claims 89-98, 100-102, 114-121, and 123-130 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4.   Claims 103-112 and 131-133 are allowed.

Art Unit: 2675

Conclusion

5.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Bell whose telephone number is (703) 306-3019. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Saras, can be reached at (703) 305-9720.

Any response to this action should be mailed to: Commissioner of Patents and Trademarks
                                                      Washington, D.C. 20231
or faxed to: (703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Paul Bell
Art unit 2675
9 September 2002